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P R E F A C E.



THE present Volume, prepared, as customary, under the inspection of the Committee of Correspondence and Papers, contains the particulars of those meritorious exertions which have been rewarded by Medals or Pecuniary Gratifications during the last Session. The number of subjects is not, perhaps, so great as on some former occasions, but it is hoped that both the Society and the Public will be of opinion that the value of the Communications amply makes up for any deficiency in the former respect.

In the Class of Agriculture the Society has conferred two Medals, being the Premiums offered for the successful Plantation of Forest Trees on Land not adapted to other Cultivation. Sir W. W. Wynne, Bart., received the first Medal for 206 acres of Plantation; and Ralph Creyke, Esq., the second Medal, for 34 acres. The Rev. Dr. Cartwright has been the success-

ful claimant for the Honorary Premium offered for Comparative Experiments on the Efficacy of different Manures, his attention being specially directed to the action of Burnt Clay, as a top dressing on stiff soils. The spirited and judicious process by which Robert Haldane Bradshaw, Esq., M. P., has reclaimed nearly 300 acres of Peat Moss, and thus opened a new source of supply to the markets of the populous district in which his improvements are situated, demanded, and has received, the Gold Medal of the Society. A Medal, and a pecuniary Reward, have been awarded to Mr. Common, for his ingenious Self-Adjusting Double Drill Turnip Sower. A branch of rural economy, interesting from its connexion with the instincts and manners of one of the most curious of the insect tribe, and valuable from the resources which it offers to the cottager, as well as to the other inhabitants of the country, has been well illustrated by I. Espinasse, Esq.; his Communication on the Management of Bees, being the result of assiduous and long continued personal observation, may be securely confided in.

In the Class of Chemistry, the Gold Medal

has been awarded to A. Bowden, Esq., of the Navy Office, in consequence of the success which has hitherto attended the temporary submersion of ships in sea-water, as a means of preventing and curing the Dry Rot. This method was suggested in a work on the subject, published by Mr. Bowden in the year 1815; and, by order of the Lords of the Admiralty, was made trial of on the Eden sloop of war, in the Autumn of the following year.

Under particular circumstances, the Society of Arts extends its bounty even to posthumous merit, and hence has rewarded, during the last Session, the widow of the late Samuel Brierly, for a simple and effectual machine, invented by him, for stretching Woollen Warps.

To diminish, as much as possible, the necessary and accidental hazard of life and of limb, to which certain indispensable employments are particularly exposed, has ever been an important object in the views of the Society. Mr. Grant's Life Preserver, in cases of shipwreck, particularly adapted to the merchant service; Mr. Cook's Night Life Buoy, chiefly for the use

of the navy; and Mr. Prior's method of providing against the fatal accidents that are perpetually occurring in Mines, in consequence of the breaking of the rope by which the men ascend and descend, evince the undiminished zeal of the Society in the service of humanity. Mr. Ramshaw's improvements in Copper-plate Printing might be cited as another example in this class, if they did not, at the same time, claim the additional merit of improving the quality of the produce.

To Mr. Park, the inventor of the New Mooring Blocks, adopted, by order of the Navy Board, in Portsmouth Harbour, the Society has most gladly awarded a Gold Medal. In cheapness, in security, in precluding the necessity of throwing many thousand tons of shingle into a harbour already too shallow, this invention possesses as many substantial claims to public notice, and we doubt not will come into general use.

Mr. Ritchie's improvement in Time-keepers, by locking together the pallets, crutch, and pendulum, occasions a great saving in the motive force, and obviates a very powerful cause of the

inequality in the rate of going. It is simple, cheap, and may be adapted to all extant clocks, and, therefore, the Society have conferred upon the inventor, both a Medal and a Pecuniary Reward.

Lieutenant Shuldham's very ingenious plan of Ballasting Sailing Boats, Dispatch Vessels, &c., so as to accommodate the center of gravity to the particular state of the wind and sea, having, on trial, been found to be considerably successful, has obtained the favourable notice of the Society; and is here published, in order to encourage and suggest farther experiments.

Mr. Jones's arrangement of the Sheaves of Pulley Blocks is calculated to improve, at the same time, the power and the simplicity of this very extensively useful machine.

Mr. Clement's Machine for drawing Circles, Ellipses, and Right Lines on Paper, or on Copper, by which ellipses of all proportions may be geometrically described, will probably be considered as second in importance and ingenuity to none of the preceding communications. The

opinion entertained of it by the Society may be judged of, from their having conferred on the inventor the Gold Medal, and from their having appropriated to its full illustration a very unusual number of engravings. For one of those which are in outline, the Society is indebted to the liberality of R. H. Solly, Esq., a Chairman of the Committee of Polite Arts; the others in outline are presented by Mr. Clement.

The Portrait of the late Duke of Northumberland, prefixed to the present Volume, is offered as a mark of respect to the noble House of Percy, the members of which, from the very commencement of the Institution, by liberal subscriptions, and, what is more gratifying, by personal attention, have ever shown themselves the zealous friends of the Society, "*Simili frondescit virga metallo.*"

THE Society take the present opportunity of returning their Thanks to the different Public Bodies and Individuals who have honoured them with Presents during the Session, the particulars of which are noticed in the body of the Volume. Without presuming to direct in what channels the liberality of the friends to this Institution shall flow, it may be stated, that such contributions as may put the Society in possession of a compleat collection of all the Publications of any value on the application of Mathematics to practical Mechanics, will be especially acceptable.

The Society desire it to be clearly understood, that, as a Body, they are not responsible for any Opinion or Representation of Facts contained in the following Pages.